

US-PAT-NO:

6403240

Hitachi

DOCUMENT-IDENTIFIER: US 6403240 B1

TITLE: Magnetic recording media and magnetic  
recording system  
using the same

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Brief Summary Text - BSTX (24):

FIG. 1 shows the dependence of normalized media noise and S/N on Br x t of media using a Cr--15 at % Ti underlayer or a underlayer added with 5 at % B, i.e., Cr--14.3 at % Ti--5 at % B. These media were manufactured by changing film structures and process conditions so that almost the same coercivities were obtained. A numeral and symbols affixed to the top of each element indicate the concentration of each element represented by an atomic percentage (at %). The normalized media noise is defined as media noise normalized by an output of an isolated read signal and a track width. In the following description, the media noise is evaluated by using this normalized media noise. The normalized noise is reduced by about 15% and the SIN is enhanced for the media using the CrTiB underlayer compared to the media using the CrTi underlayer at any values of Br.times.t is used. Similar to the CrTi underlayer, the CrTiB underlayer has the bcc structure and the (100) orientation, and the hcp (11.0) orientation of the Co alloy magnetic layer is not degraded.



US006403240B1

(12) **United States Patent**  
**Kanbe et al.**

(10) **Patent No.: US 6,403,240 B1**  
 (45) **Date of Patent: Jun. 11, 2002**

(54) **MAGNETIC RECORDING MEDIA AND  
 MAGNETIC RECORDING SYSTEM USING  
 THE SAME**

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(List continued on next page.)

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#### (57) ABSTRACT

A magnetic recording system includes an in-plane magnetic recording medium having a magnetic layer fabricated on a single underlayer or on a plurality of underlayers respectively fabricated on a substrate; a driver unit for driving the in-plane magnetic recording medium in a write direction; a magnetic head having a read unit and a write unit; a unit for moving the magnetic head relative to the in-plane magnetic recording medium; and a read/write signal processing unit for reading an output signal from the magnetic head and writing an input signal to the magnetic recording media, wherein the read unit of the magnetic head is a magnetoresistive head and the single underlayer or at least one of the plurality of underlayers is made of Co-containing amorphous material or fine crystal material, or is made of alloy material, the alloy material having as the main components at least one element selected from a group consisting of Cr, Mo, V and Ta and containing at least one element selected from a group consisting of B, C, P and Bi. The magnetic recording system can be realized which can read and write high density information and have high reliability.

**9 Claims, 10 Drawing Sheets**

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(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** 08/849,414

(22) **Filed:** May 19, 1997

(30) **Foreign Application Priority Data**

May 20, 1996 (JP) ..... 8-124334

(51) **Int. Cl.<sup>7</sup>** ..... B32B 15/04; B32B 15/20; G11B 11/00

(52) **U.S. Cl.** ..... 428/694 TS; 428/332; 428/65.7; 428/666; 428/694 TM; 360/131; 365/173

(58) **Field of Search** ..... 428/694 T, 694 TS, 428/694 TR, 694 TM, 694 MM, 692, 332, 65.3, 65.7, 666; 365/171, 173, 157, 158; 360/113, 119, 313, 131, 135

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